

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.**

Application Serial Number: 09/762,261D  
Source: 1Fw/16  
Date Processed by STIC: 4/3/06

***ENTERED***



IFW16

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/762,261D

DATE: 04/03/2006

TIME: 15:17:22

Input Set : A:\h m jackson 5001 us.txt  
 Output Set: N:\CRF4\04032006\I762261D.raw

3 <110> APPLICANT: Quinnan, Gerald V.  
 4 Zhang, Peng Fei  
 6 <120> TITLE OF INVENTION: Expression and Characterization of HIV-1 Envelope  
 7 Protein Associated with a Broadly Reactive Neutralizing  
 8 Antibody Response  
 10 <130> FILE REFERENCE: 44508-5001-US  
 12 <140> CURRENT APPLICATION NUMBER: US 09/762,261D  
 C--> 13 <141> CURRENT FILING DATE: 2001-05-29  
 15 <150> PRIOR APPLICATION NUMBER: US 60/095,267  
 16 <151> PRIOR FILING DATE: 1998-08-04  
 18 <150> PRIOR APPLICATION NUMBER: PCT/US99/17596  
 19 <151> PRIOR FILING DATE: 1999-08-04  
 21 <160> NUMBER OF SEQ ID NOS: 23  
 23 <170> SOFTWARE: PatentIn Ver. 2.1  
 25 <210> SEQ ID NO: 1  
 26 <211> LENGTH: 866  
 27 <212> TYPE: PRT  
 28 <213> ORGANISM: Human immunodeficiency virus type 1  
 30 <220> FEATURE:  
 31 <223> OTHER INFORMATION: R2 strain envelope protein (gp 160)  
 33 <400> SEQUENCE: 1  
 34 Met Arg Val Lys Gly Ile Arg Arg Asn Tyr Gln His Trp Trp Gly Trp  
 35 1 5 10 15  
 37 Gly Thr Met Leu Leu Gly Leu Leu Met Ile Cys Ser Ala Thr Glu Lys  
 38 20 25 30  
 40 Leu Trp Val Thr Val Tyr Tyr Gly Val Pro Val Trp Lys Glu Ala Thr  
 41 35 40 45  
 43 Thr Thr Leu Phe Cys Ala Ser Asp Ala Lys Ala Tyr Asp Thr Glu Ala  
 44 50 55 60  
 46 His Asn Val Trp Ala Thr His Ala Cys Val Pro Thr Asp Pro Asn Pro  
 47 65 70 75 80  
 49 Gln Glu Val Glu Leu Val Asn Val Thr Glu Asn Phe Asn Met Trp Lys  
 50 85 90 95  
 52 Asn Asn Met Val Glu Gln Met His Glu Asp Ile Ile Ser Leu Trp Asp  
 53 100 105 110  
 55 Gln Ser Leu Lys Pro Cys Val Lys Leu Thr Pro Leu Cys Val Thr Leu  
 56 115 120 125  
 58 Asn Cys Thr Asp Leu Arg Asn Thr Thr Asn Thr Asn Asn Ser Thr Asp  
 59 130 135 140  
 61 Asn Asn Asn Ser Asn Ser Glu Gly Thr Ile Lys Gly Gly Glu Met Lys  
 62 145 150 155 160  
 64 Asn Cys Ser Phe Asn Ile Ala Thr Ser Ile Gly Asp Lys Met Gln Lys  
 65 165 170 175

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67 Glu Tyr Ala Leu Leu Tyr Lys Leu Asp Ile Glu Pro Ile Asp Asn Asp  
 68 180 185 190  
 70 Asn Thr Ser Tyr Arg Leu Ile Ser Cys Asn Thr Ser Val Ile Thr Gln  
 71 195 200 205  
 73 Ala Cys Pro Lys Ile Ser Phe Glu Pro Ile Pro Ile His Tyr Cys Ala  
 74 210 215 220  
 76 Pro Ala Gly Phe Ala Ile Leu Lys Cys Asn Asp Lys Lys Phe Ser Gly  
 77 225 230 235 240  
 79 Lys Gly Ser Cys Lys Asn Val Ser Thr Val Gln Cys Thr His Gly Ile  
 80 245 250 255  
 82 Arg Pro Val Val Ser Thr Gln Leu Leu Asn Gly Ser Leu Ala Glu  
 83 260 265 270  
 85 Glu Glu Val Val Ile Arg Ser Glu Asn Phe Thr Asn Asn Ala Lys Thr  
 86 275 280 285  
 88 Ile Ile Val Gln Leu Arg Glu Pro Val Lys Ile Asn Cys Ser Arg Pro  
 89 290 295 300  
 91 Asn Asn Asn Thr Arg Lys Ser Ile Pro Met Gly Pro Gly Arg Ala Phe  
 92 305 310 315 320  
 94 Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln Ala His Cys Asn  
 95 325 330 335  
 97 Ile Ser Lys Thr Asn Trp Thr Asn Ala Leu Lys Gln Val Val Glu Lys  
 98 340 345 350  
 100 Leu Gly Glu Gln Phe Asn Lys Thr Lys Ile Val Phe Thr Asn Ser Ser  
 101 355 360 365  
 103 Gly Gly Asp Pro Glu Ile Val Thr His Ser Phe Asn Cys Ala Gly Glu  
 104 370 375 380  
 106 Phe Phe Tyr Cys Asn Thr Thr Gln Leu Phe Asp Ser Ile Trp Asn Ser  
 107 385 390 395 400  
 109 Glu Asn Gly Thr Trp Asn Ile Thr Arg Gly Leu Asn Asn Thr Gly Arg  
 110 405 410 415  
 112 Asn Asp Thr Ile Thr Leu Pro Cys Arg Ile Lys Gln Ile Ile Asn Arg  
 113 420 425 430  
 115 Trp Gln Glu Val Gly Lys Ala Met Tyr Ala Pro Pro Ile Lys Gly Asn  
 116 435 440 445  
 118 Ile Ser Cys Ser Ser Asn Ile Thr Gly Leu Leu Leu Thr Arg Asp Gly  
 119 450 455 460  
 121 Gly Lys Asp Asp Asn Ser Arg Asp Gly Asn Glu Thr Phe Arg Pro Gly  
 122 465 470 475 480  
 124 Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys  
 125 485 490 495  
 127 Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg  
 128 500 505 510  
 130 Arg Val Val Gln Arg Glu Glu Arg Ala Val Gly Leu Gly Ala Met Phe  
 131 515 520 525  
 133 Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val  
 134 530 535 540  
 136 Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln  
 137 545 550 555 560  
 139 Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln

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140	565	570	575	
142	Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val			
143	580	585	590	
145	Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser			
146	595	600	605	
148	Gly Lys Leu Ile Cys Thr Thr Val Pro Trp Asn Ala Ser Trp Ser			
149	610	615	620	
151	Lys Asn Lys Thr Leu Glu Ala Ile Trp Asn Asn Met Thr Trp Met Gln			
152	625	630	635	640
154	Trp Asp Lys Glu Ile Asp Asn Tyr Thr Ser Leu Ile Tyr Ser Leu Ile			
155	645	650	655	
157	Glu Glu Ser Pro Ile Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu			
158	660	665	670	
160	Leu Asp Lys Trp Ala Asn Leu Trp Asn Trp Phe Asp Ile Ser Asn Trp			
161	675	680	685	
163	Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly			
164	690	695	700	
166	Leu Arg Ile Val Phe Val Val Leu Ser Ile Val Asn Arg Val Arg Gln			
167	705	710	715	720
169	Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Pro Arg Gly			
170	725	730	735	
172	Pro Asp Arg Pro Glu Glu Ile Glu Glu Glu Gly Asp Arg Asp Arg			
173	740	745	750	
175	Asp Arg Ser Gly Leu Leu Val Asp Gly Phe Leu Thr Leu Ile Trp Val			
176	755	760	765	
178	Asp Leu Arg Ser Leu Cys Leu Phe Ser Tyr His Arg Leu Arg Asp Leu			
179	770	775	780	
181	Leu Leu Ile Val Thr Arg Ile Val Glu Leu Leu Gly Arg Arg Gly Trp			
182	785	790	795	800
184	Glu Ile Leu Lys Tyr Trp Trp Asn Leu Leu Gln Tyr Trp Ser Gln Glu			
185	805	810	815	
187	Leu Lys Asn Ser Ala Val Ser Leu Phe Asn Ala Thr Ala Ile Ala Val			
188	820	825	830	
190	Ala Glu Gly Thr Asp Arg Val Ile Gln Val Leu Gln Arg Val Gly Arg			
191	835	840	845	
193	Ala Leu Leu His Ile Pro Thr Arg Ile Arg Gln Gly Leu Glu Arg Ala			
194	850	855	860	
196	Leu Leu			
197	865			
200	<210> SEQ ID NO: 2			
201	<211> LENGTH: 17			
202	<212> TYPE: PRT			
203	<213> ORGANISM: Human immunodeficiency virus type 1			
205	<220> FEATURE:			
206	<223> OTHER INFORMATION: segment of R2 strain V3 domain			
208	<400> SEQUENCE: 2			
209	Lys Ser Ile Pro Met Gly Pro Gly Arg Ala Phe Tyr Thr Thr Gly Gln			
210	1	5	10	15
212	Ile			

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Input Set : A:\h m jackson 5001 us.txt  
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216 <210> SEQ ID NO: 3  
 217 <211> LENGTH: 35  
 218 <212> TYPE: PRT  
 219 <213> ORGANISM: Human immunodeficiency virus type 1  
 221 <220> FEATURE:  
 222 <223> OTHER INFORMATION: R2 strain V3 domain  
 224 <400> SEQUENCE: 3  
 225 Cys Ser Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Pro Met Gly Pro  
 226 1 5 10 15  
 228 Gly Arg Ala Phe Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln  
 229 20 25 30  
 231 Ala His Cys  
 232 35  
 235 <210> SEQ ID NO: 4  
 236 <211> LENGTH: 35  
 237 <212> TYPE: PRT  
 238 <213> ORGANISM: Human immunodeficiency virus type 1  
 240 <220> FEATURE:  
 241 <223> OTHER INFORMATION: V3 domain of strain 93TH966.8  
 243 <400> SEQUENCE: 4  
 244 Cys Thr Arg Pro Ser Asn Asn Thr Arg Thr Ser Thr Thr Ile Gly Pro  
 245 1 5 10 15  
 247 Gly Gln Val Phe Tyr Arg Thr Gly Asp Ile Thr Gly Asn Ile Arg Lys  
 248 20 25 30  
 250 Ala Tyr Cys  
 251 35  
 254 <210> SEQ ID NO: 5  
 255 <211> LENGTH: 13  
 256 <212> TYPE: PRT  
 257 <213> ORGANISM: Artificial Sequence  
 259 <220> FEATURE:  
 260 <223> OTHER INFORMATION: Description of Artificial Sequence: derivatives  
 261 of segment of V3 domain in R2 strain  
 263 <220> FEATURE:  
 264 <221> NAME/KEY: VARIANT  
 265 <222> LOCATION: (3)..(12)  
 266 <223> OTHER INFORMATION: X = any natural or non-natural amino acid.  
 268 <400> SEQUENCE: 5  
 W--> 269 Pro Met Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Gln  
 270 1 5 10  
 273 <210> SEQ ID NO: 6  
 274 <211> LENGTH: 30  
 275 <212> TYPE: PRT  
 276 <213> ORGANISM: Human immunodeficiency virus type 1  
 278 <220> FEATURE:  
 279 <223> OTHER INFORMATION: sequence of Phenetic 1 in V3 region  
 281 <400> SEQUENCE: 6  
 282 Asn Asn Thr Arg Lys Ser Ile His Ile Gly Pro Gly Arg Ala Phe Tyr  
 283 1 5 10 15

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Input Set : A:\h m jackson 5001 us.txt  
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285 Thr Thr Gly Asp Ile Ile Gly Asp Ile Arg Gln Ala His Cys  
286 20 25 30  
289 <210> SEQ ID NO: 7  
290 <211> LENGTH: 30  
291 <212> TYPE: PRT  
292 <213> ORGANISM: Human immunodeficiency virus type 1  
294 <220> FEATURE:  
295 <223> OTHER INFORMATION: sequence of Phenetic 2 in V3 region  
297 <400> SEQUENCE: 7  
298 Asn Asn Thr Arg Lys Ser Ile Ser Ile Gly Pro Gly Arg Ala Phe Tyr  
299 1 5 10 15  
301 Ala Thr Gly Glu Ile Ile Gly Asp Ile Arg Gln Ala His Cys  
302 20 25 30  
305 <210> SEQ ID NO: 8  
306 <211> LENGTH: 30  
307 <212> TYPE: PRT  
308 <213> ORGANISM: Human immunodeficiency virus type 1  
310 <220> FEATURE:  
311 <223> OTHER INFORMATION: sequence of Phenetic 3 in V3 region  
313 <400> SEQUENCE: 8  
314 Asn Asn Thr Arg Lys Ser Ile Ser Ile Gly Pro Gly Arg Ala Phe Tyr  
315 1 5 10 15  
317 Ala Thr Gly Lys Ile Ile Gly Asp Ile Arg Gln Ala His Cys  
318 20 25 30  
321 <210> SEQ ID NO: 9  
322 <211> LENGTH: 30  
323 <212> TYPE: PRT  
324 <213> ORGANISM: Human immunodeficiency virus type 1  
326 <220> FEATURE:  
327 <223> OTHER INFORMATION: sequence of Phenetic 4 in V3 region  
329 <400> SEQUENCE: 9  
330 Asn Asn Thr Arg Lys Ser Ile Arg Ile Gly Pro Gly Gln Ala Phe Tyr  
331 1 5 10 15  
333 Ala Thr Gly Asp Ile Ile Gly Asp Ile Arg Gln Ala His Cys  
334 20 25 30  
337 <210> SEQ ID NO: 10  
338 <211> LENGTH: 30  
339 <212> TYPE: PRT  
340 <213> ORGANISM: Human immunodeficiency virus type 1  
342 <220> FEATURE:  
343 <223> OTHER INFORMATION: sequence of Phenetic 5 in V3 region  
345 <400> SEQUENCE: 10  
346 Asn Asn Thr Arg Lys Ser Ile His Ile Gly Pro Gly Arg Ala Phe Tyr  
347 1 5 10 15  
349 Ala Thr Gly Lys Ile Ile Gly Asp Ile Arg Gln Ala His Cys  
350 20 25 30  
353 <210> SEQ ID NO: 11  
354 <211> LENGTH: 30  
355 <212> TYPE: PRT

RAW SEQUENCE LISTING ERROR SUMMARY                   DATE: 04/03/2006  
PATENT APPLICATION: US/09/762,261D               TIME: 15:17:23

Input Set : A:\h m jackson 5001 us.txt  
Output Set: N:\CRF4\04032006\I762261D.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:5; Xaa Pos. 3,4,5,6,7,8,9,10,11,12

**VERIFICATION SUMMARY**

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Input Set : **A:\h m jackson 5001 us.txt**  
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L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:269 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0